abeliae, Phytomyza, 37	agromyzina, Phytomyza, 104, 105
absinthium, Artemisia, 299, 300, 302,	Agromyzinen, 59, 122, 309
Acalyptratae, 60	aisha, Anagapetus, 336
Acanthonitis, 253	aizoon, Chromatomyia, 36
Acarina, 265	Akebia quinata, 48
Achillea, 300	alascense, Glossosoma (Ripaeglossa), 316, 318,
Adenocaulon, 108	320-321, 334, 336, 337, 338, 343, 345
Adenostyles, 104, 108	alascense group, Glossosoma (Ripaeglossa), 33-
alliarae, 116	335
glabra, 116	alascensis, Glossosoma, 320
adenostylis, Phytomyza, 116	alaskana, Artemisia, 296, 297, 301, 306, 307
Adisoemarto, S. (see Barlow, C. A.), 18,	alaskana, Phytomyza, 295, 297, 300-301, 310
32	313, 314
adstrictus, Pterostichus, 3-33	"albiceps, Phytomyza", 298, 299, 300, 301
Aedes, 200	albiceps group, Phytomyza, 103, 104-105, 108
aegypti, 187-215, 273	116, 295, 296, 297, 298-306, 314
atropalpus, 191, 199	key to the North American species, 105-107
dorsalis, 194, 195, 196	amendment, 297
stimulans, 191	albus, Symphoricarpos, 39, 53, 54
vexans, 279	albus subsp. laevigatus, Symphoricarpos, 39
aegypti, Aedes, 187-215, 273	Aleiantus, 257
aequalis, Dolophilodes (Sortosa), 316,	alliariae, Adenostyles, 116
330, 331-332, 336, 337, 344, 347	Allogymnopleurus, 256
aequalis group, Dolophilodes (Sortosa), 335,	Allonitis, 252
336	Alloscelina, 258
aequalis, Philopotamus, 331	Alloscelus, 258
aequalis, Sortosa (Dolophilodes), 331	alpigena, Lonicera, 41, 46, 48, 50, 56, 57, 69
aequalis, Trentonius, 331	alpigenae, Chromatomyia, 36, 38, 39, 41, 56,
affinis, Chorebus, 70	67, 69
affinalis, Phytomyza, 107	alpigenae, Phytomyza, 56
africano-brésilienes groupes, 235	alpina, Homogyne, 115
Afroharoldius, 258	alpina, Phytomyza, 106, 108, 114, 116, 117
Agamopus, 257	alpina angustifolia, Arnica, 119
Agapetus, 341	alpina attenuata, Arnica, 120
(Anagapetus) debilis, 326	alpina tomentosa, Arnica, 110, 128
tenebrosa, 328	altaicum, Glossosoma (Eomystra), 334
tenebrosus, 329	Alysiinae, 58, 308
Agonini, 32, 101	Amblypygi, 265
Agromyza lonicerae, 42, 44	ambre baltique, 242
xylostei, 44	Amérique du Sud, faune actuelle, 250
Agromyzes, 60	amphibians, 102
agromyzid flies, 59, 70	Anachalcos, 257
agromyzid leaf-miners, 104	Anagapetini, 316, 317, 318, 326-327
Agromyzidae, 35-60, 70, 103-123, 217-220, 295-309	Anagapetus, 326-327, 335, 336 aisha, 336
Agromyziden, 58, 59, 60, 122, 123, 307,	bernea, 336
308, 309	chandleri, 336
Agromyzider, 308	debilis, 316, 318, 326-327, 336, 337, 344,
agromyzids, 296, 308	346

Anagapetus (continued) aprilina, Chromatomyia, 38, 41, 42-44, 47, 61, hoodi, 336 63.68 Anaphus flavipes, 167 aprilina, Phytomyza, 42 Anderson, D. T., 263-268 aprilina (= xylostei), Phytomyza, 44 Anderson, N. H., 333, 339 aptervgote, 263 Andersson, H. (see Lindroth, C. H.), 70 Aptychonitis, 252 Andino-Patagonique sous-région, 251 Arachnida, 33 anemones group, Phytomyza, 36 Arachnodes, 257 aragonensis. Chromatomyia, 37, 217 Angelica, 122 angustatus, Pterostichus, 27, 33 Araneida, 33 Anisocanthon, 257 Araneae, 265 Anisodactylina, 83, 84 Araneus diadematus, 192 Anisodactylines, 102 Araucane sous-region, 251 Anisodactylus (Amphasia) interstitialis, 82, archangelicae, Phytomyza, 105 (Haplocentrus) laetus, 82 Archibrazil, 226 (Pseudamphasia) sericeus, 82 Archibrésil, 237 (Anadaptus) spp., 82 Archidiptera, 71 (Anisodactylus) spp., 81-82 Archiguyana, 226 (Gynandrotarsus) spp., 82 Archiguyane, 237 (Spongopus) verticalis, 82 Archiplata, 237 Anisotarsus, 101 Archoptera, 259 Annelida, 264 arctica, Artemisia, 296, 297 Clitellate, 265 arctica arctica, Artemisia, 301, 305, 307, 313 Polychaete, 265 armiger, Scoloplos, 267 Annelids, 263-268 Armigeres, 200 Annett, H. E., 188, 195, 198, 200 Arnica, 103, 104, 105, 107-108, 110, 111, 112, annua, Artemisia, 299 113, 116, 118, 119, 120, 121, 122, 129 annulata, Theobaldia, 190 alpina alpina, 111 Anoctus, 252 alpina angustifolia, 119 Anomiopsoides (= Anomiopsis), 255 alpina attenuata, 120 Anonychonitis, 253 alpina tomentosa, 110, 128 Anonymous, 160, 164 chamissonis foliosa, 120, 128 Anopheles, 189, 197, 200, 201, 202 cordifolia, 104, 110, 111, 113, 119, 120, bifurcatus, 190, 191, 195, 198 128 costalis, 195, 198, 200 latifolia, 113, 119 farauti, 197, 200 lessingii lessingii, 111, 119 gambiae, 200 mollis, 112 gambiae var. melas. 200 montana, 110, 116 maculipennis, 190, 191, 195, 198, 202 arnicae, Phytomyza, 103, 106, 108, 109-110, quadrimaculatus, 199, 200, 203 111, 112, 124, 127, 128 Anthemideae, 295, 302 arnicicola, Phytomyza, 103, 106, 108, 111-112, Antillean sub-region, insect fauna, 228 121, 124 Antilles, l'entomofaune, 249-250 arnicivora, Phytomyza, 107, 108, 118, 119, Aphengium, 253 120, 121, 126, 129 Aphengoecus, 257 arnicophila, Phytomyza, 116 Aphids, 203 aronici, Phytomyza, 115-116 Aphodiites prologaeus, 259 Arrowianella, 255 Apis mellifera, 193 Artemisia, 295-309 Apotolampus, 257 absinthium, 299, 300, 302

Artemisia (continued) "atricornis, Phytomyza" (continued), 220, alaskana, 296, 297, 301, 306, 307 297, 308 annua, 299 atropalpus, Aedes, 191, 199 arctica, 296, 297 Aulacopris, 258 arctica arctica, 301, 305, 307, 313 Aulonocnemis, 254 atrata, 299 aurata, Phytomyza, 295, 297, 306-307, 312, campestris, 300 douglasiana, 300 austriacum, Doronicum, 104, 116 dracunculus, 307 autumnalis, Musca, 193, 201 frigida, 296 Avi-dor, Y. (see Galun, R.), 193, 201 furcata, 296, 297, 306, 307, 313 Bailey, S. F., 151 indica, 299 Balinsky, B. I. 264, 268 iaponica, 301 Ball, G. E., 28, 32, 83, 98, 100, 101, 244, 249, keiskeana, 299, 304, 313 key to Phytomyza and Chromatomyia balli, Pelmatellus, 81, 84, 85, 86, 87, 88, 97 mines on, 297 98, 99, 100 maritima salina, 302 balsamifera, Populus, 4 montana = vulgaris var. vulgatissima, 299, Balthasar, V., 259, 261 303 Banks, N. 320, 329, 331, 339 moxa, 299 Barlow, C. A. 18, 32 norvegica, 296 Barnes, D. F. (see Simmons, P.), 333, 341 rupestris, 296 Barnes, R. D., 263, 266, 268 sacrorum, 299 Barraud, P. J., 195, 200 stelleriana, 299 Bar-Zeev, M. (see Galun, R.), 193, 201 tilesii, 296, 297, 301 Bates, H. W., 81, 83, 84, 85, 88, 90, 91, 93, tilesii elatior, 301, 313 94, 101 tilesii tilesii, 307, 313 Bathysciinae, 200 trifurcata, 296 Bdelvropsis, 253 vulgaris, 296, 299, 300, 301, 302, Bdelyrus, 253 313 Becker, E. C., 7, 32 artemisiae, Calycomyza, 302 bee louse, 77 "artemisiae, Phytomyza", 298, 300, 301, beetles, 8, 9, 19, 20, 22, 25, 89, 98, 100, 166 carabid, 33 302 Artemisiae, Phytomyza, 302 cereal leaf, 165-176 artemisivora, Phytomyza, 297, 298-300, geographical distribution, 165 301, 302, 310, 312, 313 life cycle, 165-166 Arthropoda, 263, 267 parasitization of, 167 arthropods, 70, 263-268, 279 pest ecosystem of, 169 Aster indicus, 303 population studies of, 166-167 trinervius, 115 forest, 32 tripolium, 217 ground, 32, 33, 88 asteris, Chromatomyia, 37, 217 Behringia, 242 Beiger, M. 114, 115, 116, 117, 121-122, 300, asterophaga, Phytomyza, 107 Ateuchites, 256 307 Ateuchus (= Choeridium), 253 Bělíček, J., 269-270 Athyreini, 262 Bellinger, P. F. (see Ellis, W. N.), 274 Athyrini, 245 Bellis perennis, 303 atrata, Artemisia, 299 Benyon, P. R., 177, 180 bernea, Anagapetus, 336 "atricornis, Phytomyza", 58, 104, 122,

Besemer, A. F. G. (see Voerman, S.), 287, Buhr, H., 44, 46, 50, 58, 110, 116, 122, 299, 300, 307, 308 Betten, C., 318, 320, 328, 329, 330, 331, bursa copulatrix, 18, 21 Byrrhidium (= Elassocanthon), 257 339 Bhatia, M. L., 188, 200 Caccobiomorphus, 254 Caccobius, 252 bianchi, Organothrips, 74 biflora, Lonicera, 44 Caccophilus, 252 bifurcatus, Anopheles, 190, 191, 195, 198 caddis-flies, 339, 340, 341 Bishop, A., 193, 200 caerulea, Lonicera, 39, 46, 50 Blaberus discoidalis, 193 Calathus, 3, 28, 32, 100, 101 Bödvarsson, H. (see Lindroth, C. H.), 70 potosi, 100 califica, Glossosoma (Ripaeglossa), 334 Bolbites, 254 Bolboceratini, 245 californica, Phytomyza, 103, 104, 105, 113-Bonasa umbellus, 22 114, 125, 128 borealis, Linnaea, 54, 55, 69 Calliphora erythrocephala, 192, 193, 196, 197, Boreocanthon, 257 202 Bothriopterus, 3, 26, 27, 28, 29, 30, 31, Calliphoridae, 202 33 Calycomyza, 295 Boucomontia, 255 artemisiae, 302 Brachinus, 100 Camelidés, 246 Brachycera, 59, 308 Campanulaceae, 104 brachypterus, Pelmatellus, 81, 85, 86, 87, campestris, Artemisia, 300 94, 97, 99, 100 campestris, Phytomyza, 103, 107, 108, 118, Braconidae, 58, 308 119-120, 126, 128, 129 Bradycellus lucidus, 90 Canthidium, 253 Braitenberg, V., 149-150 Canthochilum (= Antillacanthon = Chapincanthon), Brandenburg, R. K. (see Haynes, D. L.), 171, 257 176 Canthomoechus, 257 Braschnikow, W. C., 36, 58 Canthon, 257 brassicae, Pieris, 192, 201 humectus, 247, 248 Brauer, F. M., 71 indigaceus, 248 brevipalpus, Toxorhynchites, 194 Canthonella (= Ipselissus), 257 brevis, Nemaglossa, 82 Canthonidia, 257 Canthonina, 234, 251, 256, 260, 261 breviterminus, Scenopinus, 132 Brevitrichia, 131, 138 Canthonini, 259 griseola, 138 Canthonosoma, 258 hodgdeni, 138 Canthotrypes, 257 capitata, Valeriana, 219, 222 key to the species, 138-139 powelli, 131, 138, 139, 146 Caprifoliaceae, 35-60, 122, 220 salvadorensis, 131, 138, 139-140, 147 caprifoliae, Chromatomyia, 38, 40, 42, 52-53, yucatani, 138 54, 65, 69 bromeliads, 89 caprifoliae, Phytomyza, 52, 55 brownii var. fuchsioides, Lonicera, 46, 50 caprifolium, Lonicera, 46, 50 Brust, R. A., 287 Carabidae, 3-33, 80-102, 261 Bryan, J. H., 197, 200 Carabids, 3, 4, 19, 22, 26, 98 bryophytes, 70 Caraboidea, 235 Bubas, 252 Carabus hendrichsi, 100 Buerger, G. (see von Gernet, G.), 190, 191, Carboniferous, 258 192, 193, 194, 195, 196, 203 Carex rostrata, 5

carinifer, Diaparsis, 167 Carter, A., 3, 32 Casey, T. L., 81, 83, 90, 101 Cassolus, 258 Catharsius, 255 cecidomyiid midges, 74 cenochron (defined), 224, 230 Cenozoique, 239, 241, 243, 259 Cephalodesmius, 258 Ceratotrupes, 245 Cereal Leaf Beetle, 165-176 cerealium, Limothrips, 75 Cerodontha, 70 chiasognath, Lucanidae, 242 Chalcocopris, 253 chamaemetabola, Chromatomyia, 35, 36, 38, 39, 41, 51, 57, 67, 68 chamissonis foliosa, Arnica, 120, 128 chandleri, Anagapetus, 336 Chapman, K. M. (see Moran, D. T.), 193, 202 Chelicerata, 263, 264, 265, 266, 267 chelicerates, 264 chélydridés, 233 Chevalier, R. L., 193, 200 chilensis, Harpalus, 82 Chilopoda, 265 Chimarra, 330 Chironitis, 252 Chironomid, 70 Chorebus affinis, 70 Christophers, S. R., 188, 191, 195, 196, 197, 199, 200 Chromatomyia, 35-60, 104, 105, 122, 217-220, 296 aizoon, 36 alpigenae, 36, 38, 39, 41, 56-57, 67, 69 aprilina, 38, 41, 42-44, 47, 61, 63, 68 aragonensis, 37, 217 asteris, 37, 217 caprifoliae, 38, 40, 42, 52-53, 54, 65, 69 chamaemetabola, 35, 36, 38, 39, 41, 51, 57, 67, 68 crawfurdiae, 37 deirdreae, 36, 40 erigerontophaga, 37, 40 farfarella, 37, 218, 219 flaviceps, 42 fricki, 35, 38, 41, 42, 50, 52, 53-54, 55,

fricki (continued), 66, 69 fuscula, 37, 40 gentianae, 37 gentianella, 37 gregaria, 38, 41, 50-51, 57, 62, 64, 68 horticola, 37, 104, 108, 217, 218, 219, 297 involucratae, 38, 41, 51-52, 65 key to mines on Arnica, 107-108 key to mines on Artemisia, 297 key to mines on Valerianaceae, 218 key to North American species of, 39-41 amendments to key to North American species of, 218 kluanensis, 217, 218-219, 221, 222 lactuca, 37, 39 lindbergi, 37, 218 linnaeae, 35, 38, 41, 54-55, 66, 69 lonicerae, 38, 41, 43, 44-47, 48, 62, 63, 68 lonicerae (= xylostei), 48 luzulae, 37 merula, 37, 40 milii, 37, 39, 40 mitellae, 36, 40 nervi, 38, 41, 47-48, 69 nigra, 37, 40 nigrilineata, 35, 38, 40, 41, 51, 53, 55-56, 66, 69 obscurella, 48, 50 opacella, 37 perangusta, 37 periclymeni, 38, 41, 42, 48-50, 51, 52, 53, 54, 55, 56, 57, 61, 64, 68 periclymeni group, 36, 38, 39, 51 primulae, 36 pseudogentii, 37 puccinelliae, 37, 39, 40 ramosa, 37 regalensis, 37, 40 saxifragae, 36 scabiosae, 37 scabiosarum, 37 senecionella, 37, 40, 217, 218 seneciovora, 37 skuratowiczi, 37 sp., 48 succisae, 37 symphoricarpi, 35, 38, 41, 42, 52, 62, 64,

Chromatomyia (continued)

Chromatomyia (continued) Coprini, 234, 253, 259 syngenesiae, 37, 40, 104, 108, 218, 219, Copris, 237, 245, 255, 262 220 Coproecus, 258 syngenesiae group, 37, 108, 217, 218, Coprophanaeus, 254 219-220, 297 Coptodactyla, 255 revised key to adults of, 217-218 Coptorhina (= Frankenbergerius), 254 tiarellae, 36, 40 Coquillett, D. W., 36, 58 Chrysanthemum, 299 Coquillettidia, 200 japonense (= morifolium var. sinense), 299, Corbière-Tichane, G., 192, 200 cordifolia, Arnica, 104, 110, 111, 113, 119, Chu-Wang, I-Wu., (see Foelix, R. F.), 191-120, 128 192, 201 Cornaceae, 104 Chwatt, L. J., 195, 200 corpora lutea, 7, 11 Chymko, N., 12, 14, 32 costalis, Anopheles, 195, 198, 200 ciliata, Psorophora, 189, 199, 203 courant holarcticiste, 229, 231 ciliolati, Phytomyza, 105 Covell, G., (see Barraud, P. J.), 195, 200 Circellum, 256 (see Sinton, J. A.), 195, 202 Clements, A. N., 200 crawfurdiae, Chromatomyia, 37 Clethrionomys grapperi, 22 Cretace, 235, 237, 238, 241, 259, 260 Clidemia hirta, 75 crocodiles, 237 cloudcrofti, Pseudatrichia, 136 Cronquist, A., 108, 122 clusii, Doronicum, 115 Crowson, R. A., 261 Coe, R. L., 122 Crustacea, 263, 264, 265, 266, 267 cnidii, Phytomyza, 105 Cryptocanthon, 257 Cnidium, 122 Cryptocoryne, 74 cockroach, 195, 202 Csiki, E., 101 Coleoptera, 3-33, 80-102, 203, 261, 262 Ctenicera destructor, 32 Coleoptère, 200 Ctenolepisma lineata pilifera, 202 Collart, A., 50, 58 Culex, 189, 197, 199, 200, 201 Collembola, 70, 265, 274 pipiens, 191, 195, 198 Colobonthophagus, 251 pipiens fatigans, 190, 201 columnae (= cordatum), Doronicum, 116 pipiens pallens, 193 Coluzzi, M. (see Bryan, J. H.), 197, 200 Culicidae, 187-203, 273 Compositae, 35, 37, 58, 103-123, 220, Culiciden, 203 295-309 Culiseta, 200 Condylarthes, 237 inornata, 194, 195, 197, 199, 201, 202 confinis, Dacnusa, 70 curtus, Lemophagus, 167 conioselini, Phytomyza, 105 cyanescens, Pelmatellus, 85, 86, 87, 94-95, 97, Conioselinum, 122 98, 99, 100 control loops, 156, 157, 158 cynipid wasps, 74 conyza, Inula, 116 Cyobius, 252 conyzae, Phytomyza, 104, 107, 108, 116 Dacnusa confinis, 70 cooki, Scenopinus, 133 faeroeensis, 70 Coope, G. R., 28, 32 Dacus tryoni, 267 Cooper, W. E. (see Koenig, H. E.), 158, Darlington, P. J., Jr., 229, 231, 236, 240, 261 164 Davis, M. B. (see Betten, C.), 318, 320, 328, Copridaspidus, 255 329, 330, 331, 339 Coprina, 234, 253, 255, 259, 260 Day, M. F., 193, 195, 196, 201 Coprinae, 251 DDT Residue, 285-294

DeBeer, G. R., 266, 268 distincta, Dolophilodes, 344 debilis, Agapetus (Anagapetus), 326 distribution pattern (defined), 224 debilis, Anagapetus, 316, 318, 326-327, Dixon, R. D., 287 336, 337, 344, 346 Doane, J. F., 8, 32 deirdreae, Chromatomyia, 36, 40 Dodds, G. S., 331, 340 Delopleurus, 254 Doloclanes, 333 Deltepilissus, 257 Dolophiliella gabriella, 333 Deltochilum, 257 Dolophilodes, 330-333, 335, 336, 341 Deltorrhinum, 253 (Sortosa) aegualis, 316, 330, 331-332, 336, demissa, Phytomyza, 105, 295, 297, 304-305, 337, 344, 347 306, 311, 312, 313, 314 (Sortosa) aequalis group, 335, 336 Dendropaemon, 254 distincta, 344 Denning, D. G., 322, 326, 331, 332, 333, (Sortosa) novusamericanus, 316, 330, 332-339, 340 333, 336, 337, 348 destructor, Ctenicera, 32 (Sortosa) novusamericanus group, 335, 336 Devonian, 235 (Sortosa) ornata, 336 Diabroctis (= Taurocopris), 254 (Sortosa) pallidipes, 336 diadematus, Araneus, 192 doronici, Phytomyza, 116 Diaparsis carinifer, 167 Doronicum, 104, 108, 116 Diastellopalpus, 251 austriacum, 104, 116 Dicaelus, 100 clusti. 115 Dicheirus spp., 82 columnae (= cordatum), 116 Dichotomina, 234, 251, 253, 255, 259, pardalianches, 116 260 dorsalis, Aedes, 194, 195, 197 Dichotomina (= Pinotina), 253 douglasiana, Artemisia, 300 Dichotomius, 259-260 dracunculus, Artemisia, 307 (= Pinotus), 253 Dräghia, I., 300, 308 Digitonthophagus, 251 (see Popescu-Gorj, A.), 46, 59-60 dioica, Lonicera, 38, 41, 55, 56, 69 Drepanocerina, 252 Diplopoda, 265 Drepanocerus (= Cyptochirus), 252 Diplura, 265 Drepanoplatynus, 252 Dipsacaceae, 35, 37 Drepanopodus, 256 Diptera, 35-60, 70, 71, 103-123, 131-140, Drift, J. Van der., 3, 32 187-203, 217-220, 273, 295-309 Drosophila melanogaster, 193, 200 Dipteren, 58, 122, 308 Drosophilidae, 70 Diptères, 58 dulkejti, Glossosoma (Eomystra), 334 discoidalis, Blaberus, 193 Dunn, E. R., 232, 233, 261 discoidalis, Thenarotes, 82, 83 Dutton, J. E., (see Annett, H. E.), 188, 195, discolor, Homogyne, 115 198, 200 dispersal pattern, Dysidius, 3, 26, 27 Holarctic, 227 Echiuroidea, 266 Mexican Plateau, 228 ecosystem, cereal leaf beetle pest, 169 Nearctic, 227, 228 Edmonds, W. D., 253, 254, 260, 261 Neotropical, 227 Elaphrus, 98 Paleoamerican, 228 Elateridae, 32, 203 dispersal route, Antarctic, 225 Electragapetus, 341 Dispersion, Zone de Transition Mexicaine, élements Guyano-Brésiliens, 235, 250 237, 247 élements holarctiques (en Amerique du Nord), Disphysema, 254 246

élements nearctiques (en Amerique du Nord), Eurysternina, 260 Eurysternini, 234, 258 élements neotropicaux modernes (en Amer-Eurysternus, 258, 260 ique du Nord), 246 Eusuchiens, 237 élements sudamericaines anciens (en Amer-Evans, A. M. (see Patton, W. S.), 190, 191, 195, ique du Nord), 246 202 Elliott, J. H. (see Annett, H. E.), 188, Evarthrus, 32, 100 195, 198, 200 evolution centers, southern land masses, 225 Ellis, I. D. (see Johnson, N. E.), 3, 32 Exiline, H., 22, 32 Ellis, R. A. (see Moran, D. T.), 193, 202 faeroeensis, Dacnusa, 70 Ellis, W. N., 274 Falvey, J. M., (see Koenig, H. E.), 158, 164 Emden, F. I., van., 19, 32, 83, 101 farauti, Anopheles, 197, 200 Endopterygota, 74 farfarae, Phytomyza, 118, 119, 120, 121, 306 Endrodius, 251 farfarella, Chromatomyia, 37, 218, 219 Ennearabdina, 255 fauna (definition), 230 Ennearabdus, 255 Gondwanian, 225 Entomofaune, Les Antilles, 249-250 Guyano-Brasilian, 225 Les Grandes Antilles, 249 Palaeantarctic, 225, 226 Les Petites Antilles, 250 faune actuelle, de l'Amérique du Sud, Nearctic region, 227 composition, 250 Neotropical region, 227 faune actuelle, sous-région Antillaine, 249 néotropical, 237 faune actuelle, Zone de Transition Mexicaine. sudaméricaine, 241, 242, 243 composition, 247 Zona de Transition Mexicaine, 239, 241 faune d'origine moderne, patron de dispersion Entomofaune actuelle, Amerique du Nord, Neotropical, 249 faune d'origine septentrional ancienne, patron Region Neotropical, 247 de dispersion Paléoaméricaine, 248 Eocene, 237, 240, 241 faune d'origine septentrional moderne, patron Eomystra, 318, 323-326, 334-335, 338 de dispersion Nearctique, 249 Epactoides, 257 faune d'origine sudamericaine ancienne, patron Ephemeropteren, 341 de dispersion, Haut Plateau, 247 Epilissus, 257 faune Sudaméricaine, origine, 231 Epionitis, 253 courant holarcticiste, 231 Epirhinus, 257 A preponderance australe, 231 Equidés, 246 Théorie de Synthese, 231, 233-246 Eretmapodites, 200 Fediae, Phytomyza, 218 erigerontophaga, Chromatomyia, 37, 40 Fenestralis group, (Scenopinus), 131, 132 Eristalis, 202 Feronia oblongopunctata, 33 erythrocephala, Calliphora, 192, 193, 196, Filshie, B. K. (see Wensler, R. J.), 197, 203 197, 202 Finke, E. H. (see Richardson, K. C.), 188, 202 Essig, E. O., 320, 340 Finlayson, L. H. (see Rice, M. J.), 194, 195, Etnier, D. A., 323, 329, 340 202 euchartid wasp, 74 Fischer, F. C. J., 317, 319, 320, 322, 323, 325, Eucraniina, 234, 255 326, 329, 331, 332, 340 Eucranium, 255 Fisher, D. K. (see Simmons, P.), 333, 341 Eudinopus, 256 Fisher, P. D. (see Haynes, D. L.), 171, 176 Eudiptera, 71 fishes, 270 Euoniticellus, 252 flaviceps, Chromatomyia, 42 Euonthophagus, 252 flavipes, Anaphus, 167

flavocincta, Nemaglossa, 82, 83 flies, 263, 296 agromyzid, 308 Flore, Néotropical Tertiare, 241 fly. 39 Foelix, R. F., 191-192, 201 forests, oak-pine, 89, 90, 91, 98, 100 tropical cloud, 98 Francmonrosia, 257 Frank, J. H., 19, 20, 21, 32 Frey, R., 47, 58, 300, 308 Freyus, 258 Frick, K. E., 50, 51, 58, 68, 297, 300, 308 fricki, Chromatomyia, 35, 38, 41, 42, 50, 52, 53-54, 55, 66, 69 frigida, Artemisia, 296 frigidus, Petasites, 117, 121 Froelich, D. E., 190, 201 Frost, S. W., 39, 58 fruitfly, 267 Fulton, W. (see Haynes, D. L.), 165-176 fungi, 23 furcata, Artemisia, 296, 297, 306, 307, 313 fuscula, Chromatomyia, 37, 40 gabriella, Dolophiliella, 333 gabriella, Wormaldia (Wormaldia), 316, 330, 333-334, 336, 337, 344, 348 Gage, S. H. (see Haynes, D. L.), 165-176 Galun, R., 193, 201 (see Rice, M. J.), 194, 195, 202 gambiae, Anopheles, 200 gambiae var. melas, Anopheles, 200 Garreta, 256 Gentianaceae, 35, 37, 38 gentianae, Chromatomyia, 37 gentianella, Chromatomyia, 37 gentii, Napomyza, 37 Geopinus incrassatus, 82 Geotrupes, 245 Geotrupinae, 245, 262 Geotrupini, 245 Geotrupoides lithograficus, 259 Ghiselin, M., 264, 266, 268 Gibbonthophagus, 251 Gilbert, O., 3, 32 Gilchrist, B. M. (see Bishop, A.), 193, 200 Gilletellus, 253

glabra, Adenostyles, 116 Glaphyrocanthon (= Geocanthon), 257 glauca, Picea, 4 Glossosoma, 318, 322, 334-335, 338 (Ripaeglossa) alascense, 316, 318, 320-321, 334, 336, 337, 338, 343, 345 (Ripaeglossa) alascense group, 334, 335 alascensis, 320 (Eomystra) altaicum, 334 (Ripaeglossa) califica, 334 (Eomystra) dulkejti, 334 (Eomystra) hospitum, 334 (Ripaeglossa) idaho, 334 (Eomystra) inops, 335 (Eomystra) intermedium, 316, 318, 323-324, 334, 336, 337, 338, 343, 346 (Eomystra) lividum, 335 (Ripaeglossa) montana, 334 (Ripaeglossa) parvulum, 334 (Ripaeglossa) parvulum group, 334, 335 (Ripaeglossa) pterna, 316, 317, 318, 322, 334, 336, 337, 345 (Ripaeglossa) pyroxum, 334 (Ripaeglossa) sp. 1, 316, 322-323, 327, 328, 336, 337, 345 (Eomystra) ussuricum, 335 (Ripaeglossa) velona, 316, 318, 319-320, 334, 336, 337, 343, 345 (Ripaeglossa) ventrale, 334 (Eomystra) verdona, 316, 318, 325-326, 334, 336, 337, 338, 343, 346 (Ripaeglossa) wenatchee, 334 Glossosomatidae, 315-341, 343, 344, 349 key to the taxa in Alberta and eastern British Columbia, 318 Glossosomatinae, 316, 317, 318, 327-328 sp. 1., 327-328, 336, 337, 347 Glossosomatini, 316, 317, 318-326 Glyphoderus, 255 Gomphothérides, 246 Gondwana, 225, 238 Goniocanthon, 257 Gooding, R. H., 287 Gordon, R. M., 188, 194, 201 (see Griffiths, R. B.), 188, 194, 201 Goulet, H., 3-33, 80-102 Goureau, C., 42, 44, 58 gracilipennis, Pseudatrichia, 136 gracilipes, Lonicera, 48

Graham, J. E. (see Barlow, C. A.), 18, 32 Harpalinae, 101 grain fields, dynamics, 169 Harpalini, 80-102 growth of individual plants, 169 Harpalus chilensis, 82 growth potential/insect density inter-Harris, D. L., 3, 32 action, 169 Hartig, F., 50, 57, 58, 116, 122, 299, 308 succulent growth, 169 Hartland-Rowe, R. (see Radford, D. S.), 317, grain plant-cereal leaf beetle interactions, 322, 340 168-169 Hatch, M. H. (see Exiline, H.), 22, 32 Graminae, 5 Haut Plateau Mexicaine, 244 Gramineae, 35, 37, 74 Haut Plateau, patron de dispersion, 231, 233, graminum, Scaptomyza, 70 240 Grandes Antilles, l'entomofaune, 249 Haynes, D. L., 165-176 granti, Pseudatrichia, 136, 137, 145 hebronensis, Phytomyza, 107 gapperi, Clethrionomys, 22 Helictopleurina, 252 gregaria, Chromatomyia, 38, 41, 50-51, 57, Helictopleurus, 252 62, 64, 68 Heliocopris, 255, 259 "gregaria, Phytomyza", 50, 55, 56 Heming, B. S., 73-76, 263-268 Griffiths, G. C. D., 35-69, 70, 103-129, hemipteroids, 73 217-220, 295-309 Hendel, F., 42, 44, 46, 47, 48, 50, 56, 58-59. Griffiths, R. B., 188, 194, 201 61, 109, 110, 114, 115, 116, 122, 298, 300, griseola, Brevitrichia, 138 302, 308 groenlandicum, Ledum, 5 hendrichsi, Carabus, 100 Gromphas, 253 Heracleum, 122 Groschke, F., 47, 58 Hering, M. (E. M.), 39, 42, 43, 44, 46, 47, 48, groupes Africano-Brésiliens, 235 49, 50, 55, 56, 57, 59, 104, 109, 110, 114, grouse, 22 115, 116, 117, 122, 298, 300, 302, 308 Guppy, R. (see Schmid, F.), 333, 341 (see Groschke, F.), 47, 58 Guyano-Brazilian fauna, 225 Hershkovitz, P., 98, 100, 101-102 Guyano-Brésiliens élements, 235, 250 Heteroateuchus, 258 sous-région, 250 Heteroclitopus, 254 Gymnopleurina, 256 Heteronitis, 253 Gymnopleurus, 256 Heumann, H. G. (see Hansen, K.), 192, 201 gynandromorphs, 73 Hexapoda, 264, 265, 266 Gyronotus, 257 hexapods, 267 hagai, Scenopinus, 133 hiemalis, Phytomyza, 295, 296, 297, 303-304, Hagen, H. A., 328, 340 311, 312, 313 Halffter, G., 223-262 Hieracium japonicum, 303 (see Edmonds, W. D.), 260, 261 hirta, Clidemia, 75 (see Matthews, E. G.), 262 Hisaw, F. L. (see Dodds, G. S.), 331, 340 Handlirsch, A., 239 Hocking, B. 275-280 Hansen, K., 192, 201 (see Tawfik, M. S.), 285-293 hodgdeni, Brevitrichia, 138 Haplothrips (Neoheegeria) verbasci, 151 Hardy, J., 36, 42, 48, 50, 58 Holarctic dispersal pattern, 227 harlemensis, Phytomyza, 44, 47 Holarcticist hypothesis (faunal origin), 225 harlemensis, Phytomyza (Napomyza), 44, Holling, C. S., 177, 180 Holmes, N. D., 154 Harmston, F. C. (see Knowlton, G. F.), 320, Holocanthon, 257 325, 326, 331, 333, 340 Holocephalus, 253 Haroldius, 258 Homalotarsus, 254

Homogyne, 108, 115 alpina, 115 discolor, 115 sp., 115 homogyneae, Phytomyza, 114, 125 Homophylax, 316 honey bee, 203 honeysuckle, 39, 50 horofauna (defined), 224, 230 Horofaune Holarctique, 239, 245 Sudaméricaine, 239, 243 Horofaunes anciennes du nord, 233 horseflies, 278 hoodi, Anagapetus, 336 Hooper, R. L., 77-78, 188, 193, 201 Hopkins, D. M., 28, 32 horticola, Chromatomyia, 37, 104, 108, 217, 218, 219, 297 Hosoi, T., 188, 193, 201 hospitum, Glossosoma (Eomystra), 334 host plant resistance, 166 houseflies, 149, 150 Howden, H. F., 262 hovi, Microsorex, 22 Hudson, A., 188, 189, 190, 191, 197, 198, 199, 200, 201 Hudson, J. E. (see Hocking, B.), 275-280 Hultén, E., 38, 59, 296, 308 Humason, G. L., 188, 201 humectus, Canthon, 247, 248 Hurley, P. M., 239, 262 Hydropsychidae, 330 Hydroptila tenebrosa, 328-330 Hydroptilidae, 340 Hymenoptera, 59 hyperborea, Phytomyza, 107, 307 Hypocanthidium, 253 hypophylla, Phytomyza, 107, 118, 119, 121 idaho, Glossosoma (Ripaeglossa), 334 Ignambia, 258 ilicis, Phytomyza, 36 ilicis group, Phytomyza, 36 imaginis, Thrips, 75 implexa, Lonicera, 44 Inchbald, P., 46, 59 incrassatus, Geopinus, 82 Indachorius, 251 indecorus, Senecio, 220

indica, Artemisia, 299 indicus, Aster, 303 indigaceus, Canthon, 248 infuscatus, Pelmatellus, 81, 84, 86, 87, 89, 90, 97, 98, 99, 100 inops, Glossosoma (Eomystra), 335 inornata, Culiseta, 194, 195, 196, 199, 201, 202 insect fauna, Antillean sub-region, 228 Mexican zone of transition, 227 South America, composition, 228 insect wind traps, 275-284 Insecta, 77, 101, 102, 274, 315-341 Insects, 202, 270 neuropteroid, 339 Insekten, 220, 308 integerrimi, Phytomyza, 103, 107, 120-121, 127 integerrimus, Senecio, 121 intermedia, Klapalekia, 323 intermedia, Mystrophora, 323 intermedia, Mystrophorella, 323 intermedium, Glossosoma (Eomystra), 316, 318, 323-324, 334, 336, 337, 338, 343, 346 interstitialis, Anisodactylus (Amphasia), 82 Inula convza, 116 Inuleae, 116 involucrata, Lonicera, 38, 41, 51, 56, 57, 68 involucratae, Chromatomyia, 38, 41, 51-52, involucratae, Phytomyza, 51, 52 isicae, Phytomyza, 39 Isocropris, 253 jamesi, Pseudatrichia, 136 japonense (= morifolium var. sinense), Chrysanthemum, 299, 303 japonica, Artemisia, 301 japonica, Lonicera, 48 japonica, Phytomyza, 297, 299, 302-303, 304, 311 japonicum, Hieracium, 303 Jarett, L. (see Richardson, K. C.), 188, 202 Jeannel, R., 235, 236, 242, 262 Jedlička, A., 28, 32 Johnson, N. E., 3, 32 johnsoni, Scenopinus, 133 julis, Tetrastichus, 167 Juncaceae, 35, 37 Jurassique, 235, 237, 240, 260

kablikianus, Petasites, 117 Kalimerus, 303 vomena, 302 Kaloostian, G. H. (see Simmons, P.), 333, Kaltenbach, J. H., 42, 44, 59, 218, 220, 301, 302, 308 Karl, O., 50, 59, 300, 308 Kavanaugh, D. H., 95, 102 keiskeana, Artemisia, 299, 304, 313 Kelsey, L. P., 131-147 Kentranthus, 218 Kheper, 256 Kirk, V. M., 3, 33 Kjellgren, B. L. (see Betten, C.), 318, 320, 328, 329, 330, 331, 339 Klapálek, F., 323, 340 Klapalekia intermedia, 323 kluanensis, Chromatomyia, 217, 218-219, 221, 222 Knowlton, G. F., 320, 325, 326, 331, 333, 340 Koenig, H. E., 155-164 Kolbeellus, 253 Koppen, W., 236 Krogerus, H., 3, 33 kuiterti, Scenopinus, 135, 136 Kulagin, N., 188, 198, 201 Kuroda, M., 46, 48, 59, 300, 301, 302, 308 Kvičala, B., 300, 308 Labroma, 258 laciniata, Rudbeckia, 299 laciniata var. hortensia, Rudbeckia, 303 Lactuca, 217 lactuca, Chromatomyia, 37, 39 laetus, Anisodactylus (Haplocentrus), 82 laloukesi, Neothremma, 316 lanati, Phytomyza, 104, 106 lappae, Phytomyza, 108 Lardizabalaceae, 48 Larrson, S. G., 3, 33 Larsen, J. R., 191, 197, 199, 201 (see Owen, W. B.), 193, 199, 202 Laserpitium, 122

latifolia, Arnica, 113, 119

LeBerre, J. R., 192, 201

Lawrence, W. H. (see Johnson, N. E.), 3,

Ledum groenlandicum, 5 Lee, R., 187-203, 273 Leech, R. E., 22, 33 leeches, 263 Leguminosae, 105 leisure time and idle time, 161 Lemophagus curtus, 167 Leonard, F. A. (see Leonard, J. W.), 329, 340 Leonard, J. W., 329, 340 Leontodon, 218 Leopold, E. B. (see Wolfe, J. A.), 28, 33 Lepanus, 258 Lepismatidae, 202 Leptodactylidés, 233 lessingii lessingii, Arnica, 111, 119 Lethrini, 245 leucopus, Pelmatellus, 84, 85, 86, 88, 97, 99, 100 Lewis, C. T., 192, 201 Lewis, T., 73-76, 278, 279 Liatongus, 252 life support systems (see systems, life support), 156-160, 163 lignes gondwanniennes, 239 lignes inabrésiennes, 239 lignes paléantarctiques, 235, 236, 251 Ligularia, 108 Limnephilidae, 316, 337, 338, 340 Limothrips cerealium, 75 lindbergi, Chromatomyia, 37, 218 Lindroth, C. H., 3, 10, 18, 19, 21, 25, 27, 28, 31, 33, 70 lineata pilifera, Ctenolepisma, 202 Ling, Shao-Win., 332, 340 Linnaea, 35, 38, 39, 55 borealis, 54, 55, 69 linnaeae, Chromatomyia, 35, 38, 41, 54-55, 66, 69 Linnaniemi, W. M., 47, 59, 298, 300, 308 linsleyanus, Scenopinus, 131, 132, 141 Liothrips urichi, 75 Liquidambar, 89 Liriomyza, 295, 300, 301 lithograficus, Geotrupoides, 259 Litocopris, 255 lividum, Glossosoma (Eomystra), 335 Locusta migratoria, 192, 201 locusta, Valerianella, 218 longicollis, Trachysarus, 82, 83

Lonicera, 35, 38, 39, 41, 43, 45, 46, 48, 49, Ma, Wei-Chun., 192, 201 macalpeni, Pseudatrichia, 131, 136, 137, 145 alpigena, 41, 46, 48, 50, 56, 57, 69 MacDonald, (in Morris, R. F.), 179, 180 biflora, 44 MacGinite, H. D., 28, 33 brownii var. fuchsioides, 46, 50 MacGregor, M. E., 190, 194, 195, 197, 199. caerulea, 39, 46, 50 201 caprifolium, 46, 50 Machaerodontidés, 246 dioica, 38, 41, 55, 56, 69 MacKerras, I. M., 201 gracilipes, 48 Macroderus, 253 implexa, 44 Macropocopris, 252 involucrata, 38, 41, 51, 52, 56, 57, 68 maculipennis, Anopheles, 190, 191, 195, 198, japonica, 48 nigra, 41, 46, 50, 56, 57, 59 Madateuchus, 256 orientalis, 46 Maguire, B., 104, 122 periclymenum, 43, 44, 45, 46, 49, 50, Mahowald, A. P., 73 68 majalcai, Scenopinus, 131, 133-134, 142 ruprechtiana, 46 major, Phytomyza, 107 sp., 44, 49, 50 Malagoniella, 256, 259 Symphoricarpus, 60 Malicky, H., 317, 340 tatarica, 46, 50 Manning, S. A., 299, 308 xylosteum, 41, 43, 46, 47, 49, 50, 57 Manton, S. M., 263, 264, 266, 268 lonicerae, Agromyza, 42, 44 maritima salina, Artemisia, 302 lonicerae, Chromatomyia, 38, 41, 43, 44-47. Marshall, J. F., 188, 199, 201 48, 62, 63, 68 marsupiaux fossiles, 242 lonicerae (= xylostei), Chromatomyia, 48 Martin, P. S., 100, 102 lonicerae, Napomyza, 42 Martinez, A. (see Halffter, G.), 236, 256, 261 lonicerae, Phytomyza, 42, 44, 47 (see Howden, H. F.), 262 lonicerae, Phytomyza (Napomyza), 42 Martini, E., 190, 191, 201 lonicerella, Phytomyza (Napomyza), 42 masoni, Scenopinus, 131, 133, 134, 143 Lophodonitis, 253 Massifs précambrien, 239 Louveaux, A. (see LeBerre, J. R.), 192, matricariae, Phytomyza, 105, 297, 299, 302, 201 309 Lucanidae chiasognath, 242 Matsuda, R., 199, 201-202, 266, 268 lucidulus, Speophyes, 192, 200 Matthew, W. D., 233, 242, 262 lucidus, Bradycellus, 90 Matthews, E. G., 250, 255, 262 lucidus, Pelmatellus, 81 (see Halffter, G.), 251, 255, 259, 260, 261 Lucilia serricata, 192 Matthews, J. V. (see Hopkins, D. M.), 28, 32 lucublandus, Pterostichus, 33 Mayflies, 340 Luft, J. H. 201 Mayr, E., 28, 33, 82 lugens, Senecio, 117, 121 McLachlan, R., 328, 340 lugens var. exaltatus, Senecio, 114 Megalonitis, 253 lugentis, Phytomyza, 107, 118, 119, 121 Megaphanaeus, 254 lugubris, Xestonotus, 82 Megaponerophilus, 258 Lumsden, W. H. R. (see Gordon, R. M.), Megatharsis, 255 188, 194, 201 Megathopa, 256, 259 Lundqvist, A., 111, 122 Megathopomima, 256 histrans, Pterostichus, 4, 7, 28, 29, 30 Megathoposoma, 256 luteoscutellata, Paraphytomyza, 44, 47 Meijere, J. C. H. de., 42, 43, 44, 45, 46, 48, 49, 50, 56, 59, 109, 116, 122, 298, 299, 300, 309 luzulae, Chromatomyia, 37

Melanocanthon, 257 mosquito (continued) melanocephalus group, Calathus, 28 control, 285, 288-291 melanogaster, Drosophila, 193, 200 larvae, 287 melanopus, Oulema, 165 mosquitoes, 187, 188, 194, 196, 197, 199, mellifera, Apis, 193 200, 201, 279 Mentophilus, 258 Mound, L. A., 75 merula, Chromatomyia, 37, 40 moxa, Artemisia, 299 Mésosuchiens, 237 Musca autumnalis, 193, 201 Mesozoique, 239, 244 Musciden, 59 Metacatharsius, 255 mutus, Pterostichus, 4, 7, 28, 29, 30 Metallophanaeus, 254 Myadi, 32 Mexican plateau, 226, 227 Myriapoda, 263, 264, 265, 266 dispersal pattern, 228 myriapods, 267 Mexican zone of transition, extant insect Mystrophora intermedia, 323 fauna, 227 Mystrophorella intermedia, 323 mice, 22, 101 Myzostomida, 266 Michalska, Z., 300, 309 nagvakensis, Phytomyza, 107 Microcopris, 255 Nanos, 257 Micronthophagus, 251 Napomyza gentii, 37 Microsorex hoyi, 22 lonicerae, 42 Microtus pennsylvanicus, 22 xylostei, 44, 45, 47, 48 migration and industrial expansion, 161 Nearctic dispersal pattern, 227, 228 migratoria, Locusta, 192, 201 Nearctic region, entomofaune, 227 Milichus, 252 migration to, 226 milii, Chromatomyia, 37, 39, 40 Neateuchus, 256 milii group, Phytomyza, 58 Necrotauliidae, 340 Milne, L. J., 320, 329, 331, 333, 340 Nègre, J. (see Ball, G. E.), 28, 32, 98, 100 Mimonthophagus, 252 Nehman, B. F., 188, 190, 197, 198, 199, 202 Miocene, 241, 259 Nematocera-Brachycera, 71 Mitella nuda, 55 Nemaglossa brevis, 82 mitellae, Chromatomyia, 36, 40 flavocincta, 82, 83 mites, 70, 202 victoriensis, 83 Mnematium, 256 (Lecanomerus) victoriensis, 82 moesta, Wormaldia (Wormaldia), 336 nemorensis, Senecio, 117 moesta group, Wormaldia (Wormaldia), 335. Neoathyreus, 245 336 Neocanthidium, 253 mollis, Arnica, 112 Neomnematium, 256 Monoplistes, 258 Neonitis, 253 montana, Arnica, 110, 116 Neopachysoma, 256 montana = vulgaris var. vulgatissima, Artem-Neoptera, 259 isia, 299, 303 Neothremma laloukesi, 316 montana, Glossosoma (Ripaeglossa), 334 Neotropical dispersal pattern, 227 monterreyi, Scenopinus, 131, 133, 134-135, Neotropical fauna (origin of), 224, 226-227 143 Neotropical region, entomofauna, 227 Moran, D. T., 193, 202 nervi, Chromatomyia, 38, 41, 47-48, 69 Morris, R. F., 179, 180 Nesocanthon, 257 Mosely, M. E., 318, 329, 330, 340 Nesosisyphus, 256, 260 (see Betten, C.), 329, 339 Nesovinsonia, 258 mosquito, 195, 196, 201, 202, 203 nests, ball - Scarabaeinae, 229

Neuroptera, 340 nidification, 259 nigra, Chromatomyia, 37, 40 nigra, Lonicera, 41, 46, 50, 56, 57, 69 nigrilineata, Chromatomyia, 35, 38, 40, 41, 51, 53, 55-56, 66, 69 nigritella, Phytomyza, 58 Nimmo, A. P., 315-341 nitescens, Pelmatellus, 80, 83, 84, 85, 86, 87, 88-89, 90, 97, 98, 99, 101 nitescens group, Pelmatellus, 88, 90, 100 Noble, G. K., 232 Noonan, G. R., 83, 102 norvegica, Artemisia, 296 Notiobia (Anisotarsus) spp., 81 Notiobia (Notiobia) spp.,81 novusamericanus, Dolophilodes (Sortosa), 316, 330, 332-333, 336, 337, 348 novusamericanus group, Dolophilodes (Sortosa), 335, 336 novusamericanus, Philopotamus, 332 novusamericanus, Sortosa (Dolophilodes), 332 novusamericanus, Trentonius, 332 Nowakowski, J. T., 44, 45, 46, 48, 49, 50, 59, 115, 122, 300, 309 nubicola, Pelmatellus, 81, 85, 86, 93-94, 97, 99, 100 nuda, Mittela, 55 numerical taxonomy, 269-270 Nuttall, G. H. F., 188, 190, 191, 198, 199, 202 Nymphomyiidae, 71 oblongopunctata, Feronia, 33 oblongopunctatus, Pterostichus, 4, 7, 33 obregoni, Scenopinus, 131, 133, 135, 144 obscurella, Chromatomyia, 48, 50 obscurella, Phytomyza, 36 obscurella group, Phytomyza, 105 obscurella var. nigritella, Phytomyza, 39 obtusus, Pelmatellus, 83, 85, 86, 87, 90-91, 92, 97, 98, 99, 100, 101 occidentalis, Symphoricarpos, 52, 53, 69 Odonata, 278, 339 Odontoloma, 257 ogotorukensis, Senecio, 117 ohionis, Pterostichus, 4, 7, 28, 29, 30 Ohwi, J., 296, 299, 309 Oligocene, 237, 259, 260

Oligochaetes, 263 Oligoneoptera, 259 Oniticellina, 252 Oniticellini, 252 Oniticellus, 252 Onitini, 252 Onitis, 252 Ontherus, 253 Onthobius, 258 Onthocharis, 253 Onthophagiellus, 251 Onthophagini, 251 Onthophagus, 237, 245, 251, 252 (= Onthoellus), 251 Onychophora, 263, 264, 265, 267 Onychothecus, 254 opacella, Chromatomyia, 37 Ophiomyia, 105 Opiliones, 265 orbiculatus, Symphoricarpos, 50 Orcutt, A. W. (see Betten, C.), 318, 320, 328, 329, 330, 331, 339 oreas, Phytomyza, 103, 107, 108, 118-119, 120, 126, 128, 129 oregonus, Pterostichus, 4, 7, 28, 29, 30 Organothrips bianchi, 74 orientalis, Lonicera, 46 origine gondwanniene, 237 ornata, Dolophilodes (Sortosa), 336 Ortalinae, 37 Orthopodomyia, 200 Orthorrhapha-Cyclorrhapha, 71 Oruscatus, 253 osmorhizae, Phytomyza, 104, 105 Oulema melanopus, 165 Owen, W. B., 188, 193, 194, 195, 199, 202 (see Larsen, J. R.), 197, 199, 201 Oxysternon, 254 oxytropidis, Phytomyza, 105 Oxitropis, 105 Paarman, W., 3, 33 Pachylomera, 256 Pachysoma, 256 Palaeantarctic fauna, 225, 226 Palaeocopris, 255 Palaeoptera, 259 Paleoamerican dispersal pattern, 228 Paleocene, 237, 238, 239, 240 Paleodictyoptera, 259

Paleozoique, 238 Pedaridium, 253 pallidipes, Dolophilodes (Sortosa), 336 Pelmatellina, 83, 95 pallipes, Trachysarus, 82, 83 Pelmatellines, 83 Palpigrada, 263 Pelmatellus, 80-102 Panamanian (land) bridge, 227 balli, 81, 84, 85, 86, 87, 88, 97, 98, 99, Panelus, 258 100 Paoliidae, 258 brachypterus, 81, 85, 86, 87, 94, 97, 99, 100 Pappas, Larry G. (see Owen, W. B.), 193, 199, cvanescens, 85, 86, 87, 94-95, 97, 98, 99, 202 100 Paracanthon, 257 infuscatus, 81, 85, 86, 87, 89, 90, 97, 98, 99, Parachorius, 254 100 Paracopris, 255 key to the adults of the Middle and North Paragymnopleurus, 256 American species, 84-85 Paraphacosomoides, 258 leucopus, 84, 85, 86, 88, 97, 99, 100 Paraphanaeomorphus, 251 lucidus, 81 Paraphytomyza, 39, 47, 52, 58, 308 nitescens, 80, 83, 84, 85, 86, 87, 88-89, 90, 97, 98, 99, 101 luteoscutellata, 44, 47 Paraphytus, 254 nitescens group, 88, 90, 100 Parapinotus, 254 nubicola, 81, 85, 86, 93-94, 97, 99, 100 Parascatonomus, 251 obtusus, 83, 85, 86, 87, 90-91, 92, 97, 98, parasites of cereal leaf beetle. 99, 100, 101 Anaphus flavipes, Diaparsis carinijer, obtusus, proto-, 100, Lemophagus curtus, Tetrastichus julis, rotundicollis, 81, 85, 86, 87, 91, 92, 97, 167-168 99, 100 Agricultural practices, effects on populasinuosus, 81, 90 tions of, 169 stenolophoides, 91, 97, 99, 100, 101 pardalianches, Doronicum, 116 sterolophoides parallelus, 81, 85, 86, 87, 92, Paroniticellus, 252 93, 97, 99, 101 Paronitis, 253 stenolophoides stenolophoides, 83, 85, 86, Paronthophagus, 251 87, 91-93, 98 parvulum, Glossosoma (Ripaeglossa), 334 turbatus, 81 parvulum group, Glossosoma (Ripaeglossa), vexator, 85, 86, 87, 93, 94, 97, 99, 100 334, 335 vexator group, 90, 100 Pascual, Rosendo, 259 Peltecanthon, 257 Pastinaca, 122 Penney, M. M., 33 pastinacae, Phytomyza, 106 pennsylvanicus, Microtus, 22 Patrobini, 32 pensylvanicus, Pterostichus, 3-33 Patrobus, 3, 32 Pentastomida, 266 patron de dispersion (definition), 230 perangusta, Chromatomvia, 37 le Haut Plateau, 231, 241, 246 perennis, Bellis, 303 Nearctique, 244, 245, 250 periclymeni, Chromatomyia, 38, 41, 42, 48-50, Paléoaméricaine, 237, 239, 244, 252, 51, 52, 53, 54, 55, 56, 57, 61, 64, 68 260 periclymeni group, Chromatomyia, 36, 38, 39, Patton, W. S., 190, 191, 195, 202 50, 51 periclymeni, Phytomyza, 36, 48, 50, 51, 53, Pauropoda, 265 Pearson, T. R., 188, 190, 191, 194, 202 periclymenum, Lonicera, 43, 44, 45, 46, 49, pecki, Scenopinus, 133 50, 68 Pedaria, 254 pest management program, 170

Petasites, 58, 117, 122, 218, 220, 307. Phytomyza (continued) arnicivora, 107, 108, 118, 119, 120, 121, 126, frigidus, 117, 121 129 kablikianus, 117 arnicophila, 116 Peterman, Randall M. (see Walters, Carl J.), aronici, 115-116 177-186 artemisiae, 298, 300, 301, 302 Petites Antilles, l'entomofaune, 250 Artemisiae, 302 Pflugfelder, O., 266, 268 artemisivora, 297, 298-300, 301, 302, 310, Phacosoma, 258 312, 313 Phacosomoides, 258 asterophaga, 107 Phalops, 252 atricornis, 58, 104, 122, 220, 297, 308 Phanaeina, 234, 253, 254, 259, 260 aurata, 295, 297, 306-307, 312, 313, 314 Phanaemorphus, 251 californica, 103, 104, 105, 113-114, 125, Phanaeus, 254, 259, 260 quadridens, 248 campestris, 103, 107, 108, 118, 119-120, Philip, H. G. (see Gooding, R. H.), 287 126, 128, 129 Philopotamidae, 315-341, 344, 349 caprifoliae, 52, 55 key to the Genera and Species in Alberta ciliolati, 105 and eastern British Columbia, 330 cnidii, 105 Philopotamus aequalis, 331 conioselini, 105 conyzae, 104, 107, 108, 116 novusamericanus, 332 Phlaeothripidae, 74 demissa, 105, 295, 297, 304-305, 306, 311, Phormia regina, 201 312, 313, 314 terraenovae, 192, 201 doronici, 116 Phryganeidae, 340 farfarae, 118, 119, 120, 121, 306 Phytagromyza, 58, 308 Fediae, 218 Phytomyza, 36, 37, 58, 103-123, 220, gregaria, 50, 55, 56 295-309 harlemensis, 44, 47 (Napomyza) harlemensis, 44, 45 abeliae, 37 adenostylis, 116 hebronensis, 107 affinalis, 107 hiemalis, 295, 296, 297, 303-304, 311, 312, agromyzina, 104, 105 313 alaskana, 295, 297, 300-301, 310, homogyneae, 114, 125 313, 314 hyperborea, 107, 307 albiceps, 298, 299, 300, 301 hypophylla, 107, 118, 119, 121 albiceps group, 103, 104-105, 108-116, ilicis, 36 295, 296, 297, 298-306, 314 ilicis group, 36 key to the North American species, integerrimi, 103, 107, 120-121, 127 105-107 involucratae, 51, 52 amendment, 297 isicae, 39 alpigenae, 56 japonica, 297, 299, 302-303, 304, 311 alpina, 106, 108, 114, 116, 117 key to mines on Arnica, 107-108 aprilina, 42 key to mines on Artemisia, 297 aprilina (= xylostei), 44 lanati, 104, 106 anemones group, 36 lappae, 108 archangelicae, 105 lonicerae, 42, 44, 47 (Napomyza) lonicerae, 42 arnicae, 103, 106, 108, 109-110, 111, 112, 124, 127, 128 (Napomyza) lonicerella, 42 arnicicola, 103, 106, 108, 111-112, 121, 124 lugentis, 107, 118, 119, 121

Phytomyza (continued), Picea glauca, 4 major, 107 Pieris brassicae, 192, 201 matricariae, 105, 297, 299, 302, 309 Pinacotarsus, 253 milii group, 58 Pipidés, 233 nagvakensis, 107 pipiens, Culex, 191, 195, 198 nigritella, 58 pipiens fatigans, Culex, 190, 201 obscurella, 36 pipiens pallens, Culex, 193 obscurella group, 105 Pitts, C. W. (see Hooper, R. L.), 188, 193, 201 obscurella var. nigritella, 39 Platyonitis, 253 oreas, 103, 107, 108, 118-119, 120, Platyphymatia, 258 126, 128, 129 Platysma, 33 osmorhizae, 104, 105 Plecoptera, 340 oxytropidis, 105 Plecopteren, 341 pastinacae, 106 Pleistocene, 242, 243, 246 periclymeni, 36, 48, 50, 51, 53, 54, 55 Pleuronitis, 253 Ringdahli, 309 Pliocene, 240, 242, 243, 245 robustella group, 36, 58, 103, 104, 105, polychaetes, 263 108, 118-121, 129, 295, 296, 306-307 Ponerotrogus, 258 key to the North American species, 107 pont Centre-Américaine, 240, 242 amendment, 297 Popescu-Gorj, A., 46, 59-60 s. L. 36, 39, 104 Populus balsamifera, 4 saxatilis, 295, 297, 305-306, 312, 313, tremuloides, 4 314 potosi, Calathus, 100 saximontana, 103, 106, 108, 109, 112powelli, Brevitrichia, 131, 138, 139, 146 113, 124, 127, 128 Primulaceae, 35, 36 senecionis, 108, 117, 125 primulae, Chromatomyia, 36 sitchensis, 105 Pringle, J. W. S., 193, 202 skuratowiczi, 121 Proagoderus, 251 soldanellae, 36 prologaeus, Aphodiites, 259 solidaginivora, 104, 106 Prosepididontidae, 340 solidaginophaga, 107 Protoptera, 259 sp., 115, 297, 313, 314 Protoptila, 328, 335, 336 spondylii heracleiphaga, 106 tenebrosa, 316, 317, 318, 328, 336, 337, swertiae, 37 338, 344, 347 syngenesiae group, 58, 104, 122, 217, Protoptilinae, 316, 318, 328-330 220, 308 Pselaphidae, 235 tatrica, 121 Pseudarachnodes, 257 tlingitica, 104, 106 Pseudatrichia, 131, 136 tottoriensis, 297, 301-302, 310 cloudcrofti, 136 tundrensis, 106, 108, 110-111, 112, 124, gracilipennis, 136 128 granti, 131, 136, 137, 145 tussilaginis, 108, 113, 117, 129 jamesi, 136 tussilaginis kevani, 106, 117 key to the species, 136 tussilaginis petasiti, 106 macalpeni, 131, 136, 137, 145 vernalis, 37 rufitruncula, 136 xylostei, 42, 44, 47, 60 tomichi, 131, 136, 138, 146 (Napomyza) xylostei, 44 unicolor, 136 Phytomyzes, 60 Pseudepilissus, 257 Phytomyzinae, 309 Pseudocanthon (= Opiocanthon), 257

Pseudocopris, 255 Région (definition), 230 Pseudoepirinus, 257 Reig, O, 229, 233, 237, 239, 242, 245, 246, pseudogentii, Chromatomyia, 37 262 Pseudoniticellus, 252 Reinouts van Haga, H., 149-150 Pseudonthophagus, 252 Repenning, C. A., 28, 33 Pseudopedaria, 255 reptiles, 102 Pseudoscorpions, 265 resistance, host plant, 166 Pseuduroxys, 253 Reynolds, E. S., 188, 202 Psilogaster, 74 Reynolds, L. M., 287 Psorophora, 200 Rhyacophila, 315 ciliata, 189, 199, 203 Rhyacophilidae, 317, 337, 338, 339, 340, 341 pterna, Glossosoma (Ripaeglossa), 316, Rice, M. J., 194, 195, 196, 197, 202 317, 318, 322, 334, 336, 337, 345 Richardson, K. C., 188, 202 Pterostichini, 32 Richter, S. H. (see Lindroth, C. H.), 70 Pterostichus, 3, 22 Ricinulei, 263 adstrictus, 3-33 Ringdahli, Phytomyza, 309 angustatus, 27, 33 Ripaeglossa, 318, 319-323, 334, 335 lucublandus, 33 Rivard, I., 3, 31, 33 lustrans, 4, 7, 28, 29, 30 rivularis, Symphoricarpos, 38, 39, 45, 46, 47, mutus, 4, 7, 28, 29, 30 49, 50, 54, 69 oblongopunctatus, 4, 7, 33 Robineau-Desvoidy, J.-B., 42, 44, 60 ohionis, 4, 7, 28, 29, 30 Robinson, G. G., 188, 189, 191, 197, 198, oregonus, 4, 7, 28, 29, 30 200, 202 robustella group, Phytomyza, 36, 58, 103, 104, pensylvanicus, 3-33 tropicalis, 4, 7, 27, 28, 29, 30, 31 105, 108, 118-121, 295, 296, 306-307 Pterygota, 258, 265 key to the North American species of, 107 amendment, 297 pterygote, 263 puccinellae, Chromatomyia, 37, 39, 40 Rohdendorf-Holmanová, E. B., 300, 309 Pycnogonida, 266 Romoser, W. S., 77 Pycnopanelus, 258 Ross, H. H., 78, 316, 317, 318, 319, 320, 322, pygmaeus, Scenopinus, 133 323, 325, 326, 329, 330, 331, 332, 333, 334, 335, 338, 340-341 Pyrethrum, 300 pyroxum, Glossosoma (Ripaeglossa), 334 rostrata, Carex, 5 quadridens, Phanaeus, 248 rotundicollis, Pelmatellus, 81, 85, 86, 87, 91, quadrimaculatus, Anopheles, 199, 200, 92, 97, 99, 100 203 rotundifolius, Symphoricarpos, 46 Quaternaire, 246 rubrocinctus, Selenothrips, 74 quinata, Akebia, 48 Rudbeckia, 299 racemosus, Symphoricarpos, 39, 49, 50 laciniata, 299 racemosus var. laevigatus, Symphoricarpos, laciniata var. hortensia, 303 rufitruncula, Pseudatrichia, 136 Radford, D. S., 317, 322, 340 rupestris, Artemisia, 296 ramosa, Chromatomyia, 37 ruprechtiana, Lonicera, 46 Rana, 269 rutilus, Toxorhynchites, 194 Rancho la Brea, 247 Rydén, N., 47, 50, 60, 110, 123, 300, 309 Rapoport, E. H., 232, 233, 262 sacrorum, Artemisia, 299 Saha, J. G., 287 reciprocatus, Scenopinus, 133 regalensis, Chromatomyia, 37, 40 Salama, H. S., 188, 193, 194, 202 salvadorensis, Brevitrichia, 131, 138, 139-140, 147 regina, Phormia, 201

Sand, P. F. (see Wiersma, G. B.), 287, 288 Schiemenz, H., 188, 190, 191, 197, 202 Saphobius, 258 Schizogenius, 100, 102 Saproecius, 254 Schmid, F., 333, 335, 341 Sarophorus, 253 Schmidt, K. P., 232 Sasakawa, M., 46, 48, 60, 108, 115, 123, Schuler, L., 7, 33 298, 299, 302, 303, 309 Schutzmann, R. (see Wiersma, G. B.), 287, 288 Sauvagesinella, 258 Scoloplos armiger, 267 saxatilis, Phytomyza, 295, 297, 305-306, Scorpionida, 265 312, 313, 314 Scybalocanthon, 257 Saxifragaceae, 35, 36, 55, 58, 308 Scybalophagus, 257 saxifragae, Chromatomyia, 36 Sebasteos, 256 saximontana, Phytomyza, 103, 106, 108, Sebecosuchiens, 237 109, 112-113, 124, 127, 128 Sehgal, V. K., 40, 51, 53, 54, 55, 60, 105, 107, scabiosae, Chromatomvia, 37 120, 123, 217, 218, 220, 302, 309 scabiosarum, Chromatomyia, 37 Sekhon, S. S. (see Slifer, E. H.), 188, 202 Scaptocnemis, 252 Selander, R. B., 90, 102 Scaptomyza graminum, 70 Selenothrips, 74 Scarabaeina, 234, 256 rubrocinctus, 74 Scarabaeidae, 261, 262 Senecio, 58, 103, 108, 118, 122, 218, 219, Scarabaeinae, 234, 235, 251, 258, 259, 220, 308 261 indecorus, 220 Scarabaeinae, ball nests, 229 integerrimus, 121 Scarabaeini, 234, 255 lugens, 117, 121 Scarabaeolus, 256 lugens var. exaltatus, 114 Scarabaeus, 256 nemorensis, 117 Scaritini, 102 ogotorukensis, 117 Scatimus, 255 subalpinus, 117 Scatomus, 253 triangularis, 113, 114, 128 Sceliages, 256 vulgaris, 220 Scenopinidae, 131-140 Senecioneae, 58, 103-123, 220, 295, 307, 308 Scenopinids, 131 senecionella, Chromatomyia, 37, 40, 217, 218 Scenopinus, 131, 132, 133 senecionis, Phytomyza, 108, 117, 125 breviterminus, 132 seneciovora, Chromatomyia, 37 cooki, 133 sericeus, Anisodactylus (Pseudamphasia), 82 Fenestralis group, 131, 132 serricata, Lucilia, 192 hagai, 133 Serrophorus, 251 johnsoni, 133 Sharov, A. G., 258, 262 kuiterti, 135, 136 Shipley, A. E. (see Nuttall, G. H. F.), 188, 190, linsleyanus, 131, 132, 141 191, 198, 199, 202 majalcai, 131, 133-134, 142 shrews, 22 masoni, 131, 133, 134, 143 Siewing, R., 266, 268 monterreyi, 131, 133, 134-135, 143 Silberman, M. L. (see Hopkins, D. M.), 28, 32 obregoni, 131, 133, 135, 144 Simmons, P., 333, 341 Simpson, G. G., 232, 239, 243, 262 pecki, 133 pygmaeus, 133 Sinapisoma, 257 Sinton, J. A., 195, 202 reciprocatus, 133 stegmaieri, 131, 133, 135-136, 144 sinuosus, Pelmatellus, 81, 90 Velutinus group, 131, 132, 133 Sisyphina, 256, 259

Sisyphus, 256

key to the species, 133

sitchensis. Phytomyza, 105 sitchensis, Valeriana. 219 Skala, H., 300, 309 skuratowiczi, Chromatomyia, 37 skuratowiczi, Phytomyza, 121 Slifer, E. H., 188, 190, 192, 202 Smith, D. S., 192, 193, 202 Smith, H. M., 233, 262 Smith, S. D., 332, 341 smithii, Wyeomyia, 191 Sneath, P. H. A., 269-270 Snodgrass, R. E., 188, 189, 195, 197, 199, 202 sociocybernetic control, 155 Sokal, R. R. (see Sneath, P. H. A.), 269-270 soldanellae, Phytomyza, 36 solidaginivora, Phytomyza, 104, 106 solidaginophaga, Phytomyza, 107 Solifugae, 265 Sønderup, H. P. S., 46, 50, 60, 116, 123, 300, 309 Sonorienne, sous-région, 241, 243 Sortosa, 330-333, 335, 336 (Dolophilodes) aegualis, 331 (Dolophilodes) novusamericanus, 332 sous-région (definition), 230 Andino Patagonique, 250 Araucane, 251 Guvano-Brésilien, 250 soustraction faunistique, 236 South America, composition of insect fauna, 228 Southwood, T. R. E., 9, 33 Spencer, G. J., (see Ross, H. H.), 319, 320, 331, 333, 341 Spencer, K. A., 40, 42, 43, 44, 45, 46, 47, 50, 51, 52, 53, 55, 56, 60, 104, 105, 106, 107, 110, 116, 123, 298, 299, 302, 304 309 (see Hering, E. M.), 116 Speophyes lucidulus, 192, 200 Sphaerocanthon, 258 spiders, 22, 23, 33 black widow, 32 splendens, Toxorhynchites, 194 spondylii heracleiphaga, Phytomyza, 106 spruce budworm, 177-186 Spurr, A. R., 188, 202 Staley, J. (see Marshall, J. F.), 188, 199, 201

Stander, J., 178, 180 Starý, B., 46, 50, 60, 115, 116, 123, 300, 309 stegmaieri, Scenopinus, 131, 133, 135-136, stelleriana, Artemisia, 299 stenolophoides, Pelmatellus, 91, 97, 100, 101 stenolophoides parallelus, Pelmatellus, 81, 85, 86, 87, 92, 93, 97, 99, 101 stenolophoides stenolophoides, Pelmatellus, 83, 85, 86, 87, 91-93, 98 Stenopsychidae, 340 Steyskal, G. C., 40, 60 stimulans, Aedes, 191 Stiptopodius, 254 stoneflies, 340 Strandius, 251 Streblopus (= Streblopodes), 25 subalpinus, Senecio, 117 succisae, Chromatomyia, 37 Sulcophanaeus, 254 Sumner, A. K. (see Saha, J. G.), 287 swertiae, Phytomyza, 37 symphoricarpi, Chromatomyia, 35, 38, 41, 42, 52, 62, 64, 69 Symphoricarpos, 35, 38, 39, 41, 45, 46, 49, 50, 52, 53, 54, 56 albus, 39, 53, 54 albus subsp. laevigatus, 39 occidentalis, 52, 53, 69 orbiculatus, 50 racemosus, 39, 49, 50 racemosus var. laevigatus, 39, 50 rivularis, 38, 39, 45, 46, 47, 49, 50, 54, 69 rotundifolius, 46 Symphoricarpus, Lonicera, 60 Symphyla, 265 Synapsis, 255 syngenesiae, Chromatomyia, 37, 40, 104, 108, 218, 219, 220 syngenesiae group, Chromatomyia, 37, 108, 217, 218, 219-220, 297 revised key to adults of, 217-218 syngenesiae group, Phytomyza, 58, 104, 122, 217, 220, 308 synthetic hypothesis (faunal origin), 225 system, human life-support, ecological control on, 158 mass energy characteristics of, 155 mass energy dynamics of, 156

system, human life-support (continued), Thenarellus (continued). models of, 156, 157, 160 leucopus, 84 physical and technological structure of. Thenarotes discoidalis, 82, 83 158, 160, 163 sp., 82 pricing mechanism to control evolution tasmanicus, 82, 83 of. 159 Theobaldia, 202 policies, 157 annulata, 190, 191 successional changes in. 156 Thiele, H. U., 3, 10, 22, 26, 33 Systeme Volcanique transversal, 241, 245 Thompson, M. A., 199, 203 systems models. Thripidae, 75 beef production, 163 Thrips, 73, 74, 75, 76, 151 cereal leaf beetle, 163, 170-173 Thrips, 76 power plant design, 163 imaginis, 75 spruce budworm, 177 tabaci, 75 tabaci, Thrips, 75 Thurm, U., 192, 193, 194, 203 Tabaniden, 203 Thyregis, 254 Tanacetum vulgare, 302 Thysanoptera, 73, 74, 75, 76 Tapiridés, 246 Thysanura, 202, 265 tiarellae, Chromatomyia, 36, 40 Taraxacum, 218 Tardigrada, 266 ticks, 202, 263 tasmanicus, Thenarotes, 82, 83 tilesii. Artemisia. 296, 297, 301 tatarica, Lonicera, 46, 50 tilesii elatior, Artemisia, 301, 313 tatrica, Phytomyza, 121 tilesii tilesii, Artemisia, 307, 313 Tawfik, M. S., 285-293, Tiniocellus, 252 (see Gooding, R. H.), 287 tlingitica, Phytomyza, 104, 106 taxonomy, numerical, 269-270 tomichi, Pseudatrichia, 131, 136, 138, 146 Tayassuidés, 246 tottoriensis, Phytomyza, 297, 301-302, 310 Taylor, L. R. (see Lewis, T.), 74 Toxorhynchites, 194 technology, brevipalpus, 194 impact on human society, 160 rutilus, 194 impact on problems of social regulation, splendens, 194 161 Trachysarus longicollis, 82, 83 Temnoplectron, 258 pallipes, 82, 83 Tenebrio, 22 Trägårdh, I., 44, 45, 46, 60 sp., 9, 10 Tragiscus (= Deronitis), 252 tenebrosa, Agapetus, 328 trematodes, 270 tenebrosa, Hydroptila, 328-330 tremuloides, Populus, 4 tenebrosa, Protoptila, 316, 317, 318, 328, Trentonius aequalis, 331 336, 337, 338, 344, 347 novusamericanus, 332 tenebrosus, Agapetus, 329 triangularis, Senecio, 113, 114, 128 Tephritidae s. l., 37 Triassique, 235, 237, 240 terraenovae, Phormia, 192, 201 Trichillum, 253 Tesserodon, 258 Trichocanthon, 257 Tetraechma, 257 Trichoprosopon, 200 Tetramereia, 254 Trichoptera, 315-341 Tetrastichus julis, 167 Trichopteren, 341 life history, 171 trifurcata, Artemisia, 296 thapsus, Verbascum, 151 Trigonomotomi, 32 Thenarellus, 81, 84, 85, 100 trinervius, Aster, 115

tripolium, Aster, 217 tropicalis, Pterostichus, 4, 7, 27, 28, 29, 30, 31 Tropidonitis, 252 tryoni, Dacus, 267 Tschirnhaus, M., von., 38, 60, 217, 218, 219, 220 Tschitschérine, T., 27, 28, 33 tsetse flies, 197 Tubulifera, 151 Tummala, R. L., (see Koenig, H. E.), 155, 159, 160, 162, 164 tundrensis, Phytomyza, 106, 108, 110-111. 112, 124, 128 turbatus, Pelmatellus, 81 tussilaginis, Phytomyza, 108, 113, 117, 129 tussilaginis kevani, Phytomyza, 106, 117, 129 Vulcanocanthon, 257 tussilaginis petasiti, Phytomyza, 106, 129 Tussilago, 58, 122, 220, 308 Tyo, R. M., 286, 288 Udvardy, M. D. F., 233, 262 Ulmer, G., 320, 328, 329, 341 Umbelliferae, 104, 122 umbellus, Bonasa, 22 unemployment and economic expansion, 161 unicolor, Pseudatrichia, 136 Uniramia, 264, 265, 267 Uranotaenia, 200 urichi, Liothrips, 75 Uropygi, 265 Uroxys, 253, 255 ussuricum, Glossosoma (Eomystra), 335 Valeriana, 217-220 capitata, 219, 222 sitchensis, 219 Valerianaceae, 217 key to Chromatomyia mines on, 218 Valerianella, 218 locusta, 218 Vaurie, P. (see Selander, R. B.), 90, 102 velona, Glossosoma (Ripaeglossa), 316, 318, 319-320, 334, 336, 337, 343, 345

Velutinus group (Scenopinus), 131, 132,

ventrale, Glossosoma (Ripaeglossa), 334

verbasci, Haplothrips (Neoheegeria), 151

key to the species, 133

Verbascum thapsus, 151

133

Vizzi, F. F., 188, 199, 200, 203 Voerman, S., 287, 288 Vogel, R., 188, 191, 197, 203 Voigt, G., 46, 60 von Gernet, G., 190, 191, 192, 193, 194, 195, 196, 203 vulgare, Tanacetum, 302 vulgaris, Artemisia, 296, 299, 300, 301, 302, vulgaris, Senecio, 220 Walbauer, G. P., 188, 189, 190, 197, 198, 199, 200, 203 Walker, F., 37, 60, 328, 341 Walters, Carl J., 177-186 Wattal, B. L. (see Bhatia, M. L.), 188, 200 Wegener, A. (see Koppen, W.), 236 wenatchee, Glossosoma (Ripaeglossa), 334 Wenk, P., 197, 203 Wensler, R. J., 197, 203 Westfall, J. A. (see Hooper, R. L.), 188, 193, 201 Weyenbergh, H., 44, 60 Whitcomb, W. H. (see Harris, D. L.), 3, 32 Whitehead, D. R., 82, 100, 102 Wiersma, G. B., 287, 288 wireworm, 32 Wold, J. L. (see Anderson, N. H.), 333, 339 Wolfe, J. A., 28, 33 (see Hopkins, D. M.), 28, 32 Wormaldia, 333-334, 335, 336, 341 (Wormaldia) gabriella, 316, 330, 333-334, 336, 337, 344, 348 (Wormaldia) moesta, 336 (Wormaldia) moesta group, 335, 336 worms, gordian, 23 Wyeomyia smithii, 191 Xenocanthon, 257 Xestonotus lugubris, 82

verdona, Glossosoma (Eomystra), 316, 318.

325-326, 334, 336, 337, 338, 343, 346

vexator, Pelmatellus, 85, 86, 87, 93, 94, 97, 99,

victoriensis, Nemaglossa (Lecanomerus), 82

verticalis, Anisodactylus (Spongopus), 82

vexator group, Pelmatellus, 90, 100

victoriensis, Nemaglossa, 83

vernalis, Phytomyza, 37

vexans, Aedes, 279

Xinidium, 254
Xiphosura, 265
xylostei, Agromyza, 44
xylostei, Napomyza, 44, 45, 47, 48
xylostei, Phytomyza, 42, 44, 47, 60
xylostei, Phytomyza (Napomyza), 44
xylosteum, Lonicera, 41, 43, 46, 47, 49,
50, 57
yomena, Kalimerus, 302
yucatani, Brevitrichia, 138

yomena, Kalimerus, 302 yucatani, Brevitrichia, 138 Zacharuk, R. Y., 192, 193, 203 Zavřel, H., 300, 309 (see Skala, H.), 300, 309 Zoerner, H., 46, 50, 60, 299, 309 Zone de Transition Méxicaine, 231, 233, 237 Zonocopris (= Plesiocanthon), 253





